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RESEARCH ARTICLE

PRENATAL DIAGNOSIS AND SUCCESSFUL SURGICAL TREATMENT OF GASTROCHISIS: CASE REPORT

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Abstract

Due to routine maternal serum screening and fetal ultrasonography, gastrochisis is routinely found in utero, we report a case of gastrochisis diagnosed prenatally, the delivery was made by C-section and the patient was operated at day 1 of life with good outcome The surgical treatment of gastroschisis differs from hospital to hospital and has changed over the years, especially since the spring-loaded silo was invented. Every surgical repair has as its main objective the return of the viscera to the abdominal cavity while reducing the chance that the viscera would sustain harm from direct trauma or increased intra-abdominal pressure.Gatrochisis is remains a rare condition that be closed spontanouesly during the pregnancy and that can prevented by acid folic supplementation.

Introduction:-

The most frequent congenital abnormality of the abdominal wall is gastroschisis. Due to routine maternal serum screening and fetal ultrasonography, it is routinely found in utero. The timing, manner, and place of birth may be affected by prenatal diagnosis. The severity of intestinal injury generally determines the prognosis for gastroschisis.

Case presentation :
We report a case of a 24 years old woman without any medical history, gravida 1 para 0, who was pregnant at 38 weeks of gestation. The patient is from a rural area and has an unattended pregnancy. She presented to the obstetrical emergency room for uterine contractions, clinical examination found stable patient with normal blood pressure, obstetrical evaluation found a dilated cervix at 2cm with intact waters; an ultrasound was performed showing laparoschisis floating intra-amniotic mass, right-sided to the umbilical cord with an estimated fetal weight at 3kg700 and a normal Doppler. **Figure 1**

The patient had a BMI at 24, with no drugs or alcohol consumption. Toxoplasmosis and rubeole serology was not made, and the patient did not have any early gestation ultrasound.

The decision was made to perform a C-section to preserve the abdominal content. We delivered a female fetus Apgar score 10 of 10, of 3kg700, who was having a right cord abdominal wall defect with intestinal necrosis**Figure 2.** The fetus was hospitalized in neonatology were the research of other malformations was negative. The decision was made to operate at J1 of birth to remove the necrosis intestine and close the abdominal wall.Pediatric surgeon's team, with good outcome, performed the surgery; the patient is a month years old at this time.

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Figure 1:- Ultrasound showing gastrochisis.

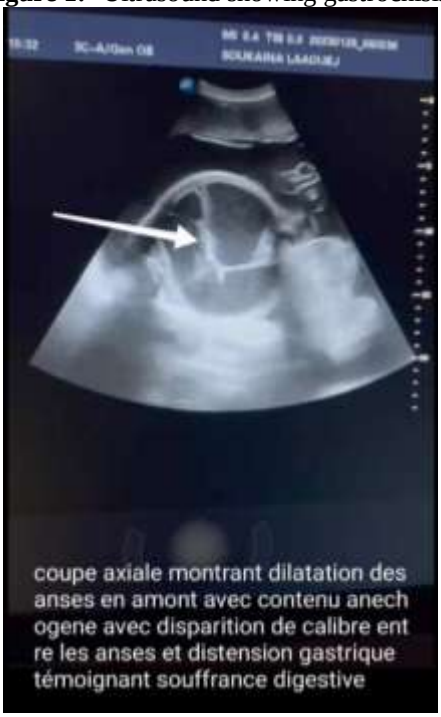
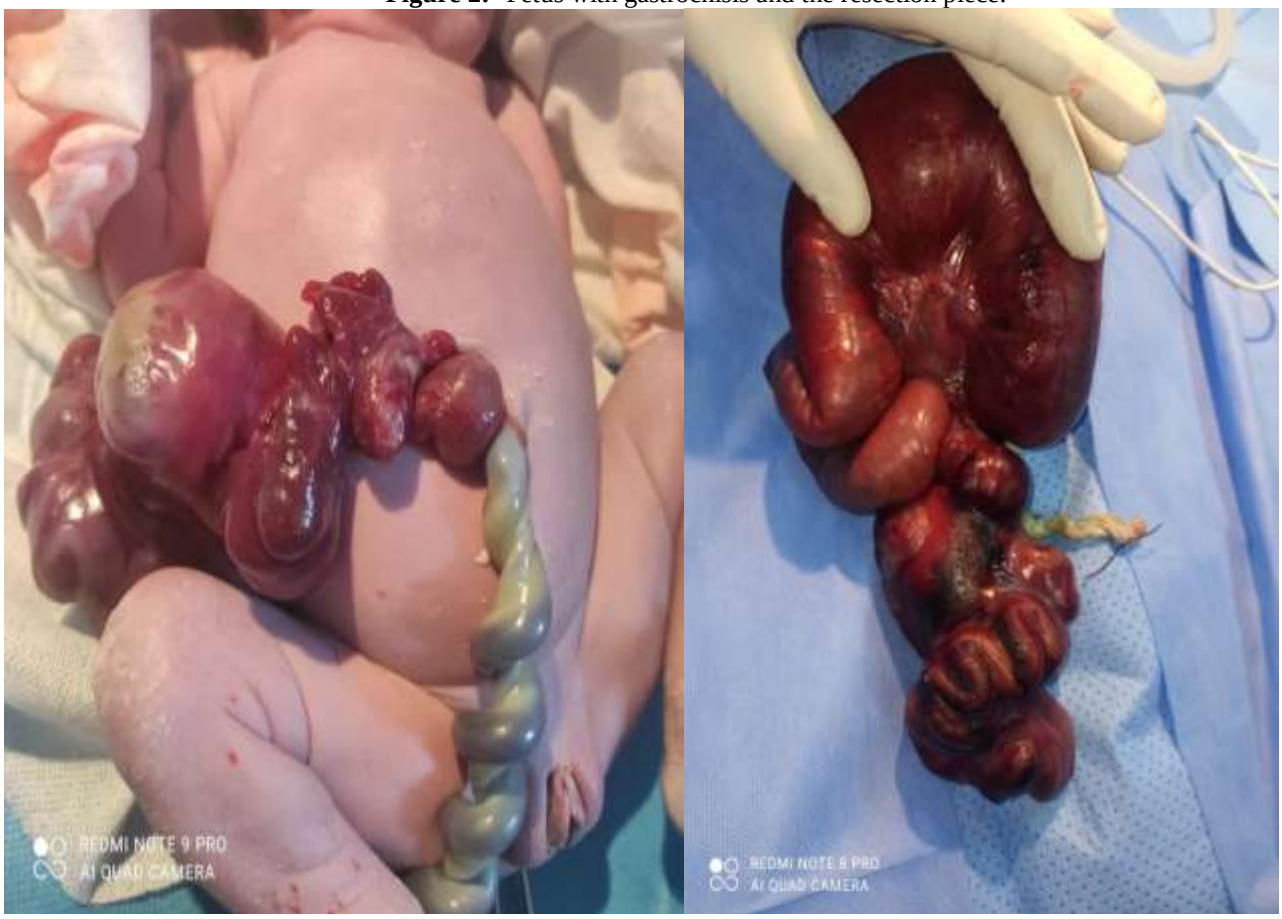


Figure 2:- Fetus with gastrochisis and the resection piece.



Discussion:-

According to the EUROCAT network's European registries, the prevalence of gastroschisis overall in 2011 was 3.09 per 10,000 live births, with a live birth prevalence of 2.63 per 10,000 [1]. Between 1980 and 2011, gastroschisis was more common.

Gastroschisis is easily diagnosed at the 11–14 weeks nuchal scan: a recent study based on over 45,000 pregnancies reported a sensitivity of 100% [2], whereas a systematic review of the literature found a sensitivity near to 90% [3].

Gastroschisis is observed on ultrasound as a full-thickness defect in the abdominal wall, in most cases to the right of the insertion of the umbilical cord just like our case [4].

Mastroiacovo et al[5] .'s analysis of 3322 gastroschisis cases from 24 birth-defect registries around the world revealed that 469 (14.1%) instances were recorded as "non isolated," including 404 multiple congenital defects and 41 chromosomal disorders. There were two distinct patterns among the instances of numerous congenital anomalies: 26 cases resembled the limb-body wall complex, and 26 others resembled the omphalocele, bladder exstrophy, imperforate anus, spina bifida (OEIS) complex (see below in the omphalocele paragraph). The investigators contended that these occurrences may indicate misdiagnoses of the abdominal wall defect because omphalocele rather than gastroschisis is more frequently reported in both scenarios.

The investigators concluded that the best estimate of the percentage of gastroschisis associated with serious unrelated abnormalities is about 10% after combining their study with those of other published reports. Similar numbers were observed in a recent prenatal series [6] and in another registry-based investigation [7].

It has been demonstrated that fetal growth limitation can predict a higher chance of unfavorable outcomes during pregnancy. Since abdominal circumference measurements are impacted by gastroschisis, diagnosing fetal growth limitation is difficult, barring extreme cases. It has been questioned whether it is beneficial to use fetal weight estimation formulas that exclude belly circumference [8].

The exposed bowel loops can cause significant water loss by evaporation. Immediately after delivery, intravenous fluid resuscitation should be started. The herniated loops should be wrapped in warm saline-soaked gauze, and covered with plastic wrap to reduce water and heat losses. The newborn should be positioned on the right side, with the packed bowel placed centrally on the abdomen to prevent kinking of the mesentery [4]. The ideal treatment of gastroschisis is immediate repositioning of the herniated bowel into the abdominal cavity, with closure of the abdominal wall (primary reduction and repair). If the patient is unstable, however, or if reduction is likely to cause an abdominal compartment syndrome, staged repair is preferred: it consists of applying a plastic silo around the bowel, which allows to progressively push the bowel into the abdominal cavity over days, until definitive closure is possible. Prefabricated silos are available, with a circular retention spring that can be placed into the abdominal defect without sutures or general anesthesia [9]. Immediate closure may be associated with a higher risk of respiratory complications, whereas delayed closure usually involves a longer time to reach full enteral feeds. Most evidence, however, comes from retrospective studies, which may be biased by the policies of individual centres, as well as by association with complex gastroschisis: when bowel atresia is present, primary anastomosis is often impossible owing to bowel thickness and extent of the peel of the serosa. These children are therefore more likely to remain on parenteral nutrition for some weeks until repair is possible, with the inherent risk of increased infectious and cholestatic complications [9].

The etiology of gastroschisis is subject to some debate. It is commonly held that the pathogenesis involves an in-utero vascular accident and, along these lines, two theories have been advanced. One theory suggests that involution of the right umbilical vein causes necrosis in the abdominal wall leading to a right-sided defect; a second theory posits that the right omphalomesenteric (vitelline) artery prematurely involutes causing a weakening in the abdominal wall through which the intestinal contents subsequently rupture.[10] These theories are supported by the observation that gastroschisis is associated with intestinal atresia, a condition that is also thought to be associated with an ischemic etiology.[11].

The study of Arimatias ratio et al. on maternal risk factors of gastrochisis about One-hundred-eighty-eight cases of gastroschisis that were compared with 910 matched controls. Nulliparity was a significant risk factor for gastroschisis, aOR 2.00 (95% CI 1.29-3.11) whereas obesity was protective, aOR 0.35 (95% CI 0.15-0.83). Smoking

appeared to increase the riskfor gastroschisis, aOR 1.32 (95% CI 0.88-1.97). The mean maternal age of newborns with gastroschisis was significantly lower than average (p <.001). [12].

The surgical treatment of gastroschisis differs from hospital to hospital and has changed over the years, especially since the spring-loaded silo was invented. Every surgical repair has as its main objective the return of the viscera to the abdominal cavity while reducing the chance that the viscera would sustain harm from direct trauma or increased intra-abdominal pressure. The options are I primary reduction with operative fascia closure (ii) silo installation (iii), serial reductions (iv), and delayed fascial closure (v), and (iv) primary or delayed reduction (v) without fascial closure. Additionally, there is debate regarding the best time and place for surgical intervention, which can range from immediate repair in the delivery room through reduction and closure in the neonatal intensive care unit to surgical closure in the operating room. [13].In all cases, inspection of the bowel for obstructing bands, perforation, or atresia should be undertaken. Bands crossing the bowel loops should be divided before silo placement or primary abdominal closure to avoid subsequent bowel obstruction. Consideration should be given to the early establishment of central venous access, as intestinal hypomotility is invariably present. [14].

Conclusion:-

Gatrochisis is remains a rare condition that be closed spontanouesly during the pregnancy and that can prevented by acid folic supplementation

The surgical management of gastrochisis consists of closure of the abdominal wall defect, while minimizing the risk of injury to the abdominal viscera either through direct trauma or due to increased intra-abdominal pressure

Consent:
Parents' consent was obtained

Conflicts of interest:
The Authors declare that they do not have any conflict of interest

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